GADOLINIUM OXIDE NANOPOWDER

Purity 99.9%

Gd₂O₃

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Lanthanide oxides have gained a lot of attention due to their diverse use for applications such as in the nuclear industry, electronics, lasers, and optical material. A great deal of interest in gadolinium oxide exists because of its physicochemical properties, such as the crystallographic stability up to temperatures of 2325°C, high mechanical strength, excellent thermal conductivity, and a wide bond optical gap. Gadolinium oxide is an inorganic compound with the formula Gd2O3. This compound is one of the most commonly available forms of the rare-earth element Gadolinium. Gadolinium oxide (Gd2O3), also known as Gadolinia is a white powder that is insoluble in water and somewhat soluble in acids. It has a tendency to absorb moisture and carbon dioxide from the air. It has some optical applications utilize or could utilize gadolinium oxide nanopowders, including CTRs, optical glasses, display panels, and others.

**GADOLINIUM OXIDE NANOPOWDER**

Gadolinium [Xe] 4f7 5d1 6s2/Oxygen [He] 2s2 2p4

**Additionl Powder Characteristics**

<table>
<thead>
<tr>
<th>Stock No.</th>
<th>Purity</th>
<th>APS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS6130-03-313</td>
<td>99.9%</td>
<td>&lt;100nm</td>
</tr>
<tr>
<td>NS6130-03-314</td>
<td>99.9%</td>
<td>80nm</td>
</tr>
<tr>
<td>NS6130-03-315</td>
<td>99.9%</td>
<td>40nm(Cubic)</td>
</tr>
<tr>
<td>NS6130-03-316</td>
<td>99.9%</td>
<td>10nm</td>
</tr>
</tbody>
</table>

**Technical Specification**

<table>
<thead>
<tr>
<th>Molecular Formula</th>
<th>Molecular Weight</th>
<th>Density</th>
<th>Melting Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gd₂O₃</td>
<td>362.50 g/mol</td>
<td>7.07 g/cm³</td>
<td>2420 °C</td>
</tr>
</tbody>
</table>

**Chemical Composition**

<table>
<thead>
<tr>
<th>Product</th>
<th>Weight Percent (nominal)</th>
<th>Other Metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gadolinium Oxide Nanopowder</td>
<td>99.9%</td>
<td>1000ppm</td>
</tr>
</tbody>
</table>

**Applications**

- Fluorescent materials, luminescence, and electroluminescent devices
- Special optical glass and plasma display panels
- In the electric industry
- As additives, catalysts, and dopants
- In cathode-ray tubes, ferroelectric memory, and field emission displays
- High-resolution x-ray medical imaging
- Neutron converter
- Scintillators and sintering aids
- Solid oxide fuel cell
- UV detectors

**Quick Facts**

- **Product**: Gadolinium Oxide Nanopowder
- **Stock No**: NS6130-03-313
- **CAS**: 12064-62-9
- **Color**: White
- **Form**: Powder
- **Symbol**: Gd2O3
- **Group**: Gadolinium 3/Oxygen 16

**Electronic Configuration:**

Gadolinium [Xe] 4f7 5d1 6s2/Oxygen [He] 2s2 2p4